AELAS Existing Situation

Superintendent John Huppenthal directed his IT team to validate and implement recommendations identified in the *Information Technology Study* initiated and sponsored by the Governor's Office of Economic Recovery. At the same time, a national movement was underway to create longitudinal educational systems to track and monitor student progress. The federal government included these longitudinal elements as a condition of state acceptance of the American Reinvestment and Recovery Act stimulus funds, and the Legislature enacted ARS 15-249 requiring ADE to deliver a real-time, web-based system that provides actionable information to teachers and administrators that can be used to improve student outcomes.

The *Information Technology Study* results were sobering – it was determined that ADE lacked the most basic of IT infrastructure and discipline needed to comply with the legislative goals of AELAS. Additionally, SAIS (Student Accountability and Information System) was processing nearly $5.8 billion in student payments on unsupported, antiquated hardware and software. The underlying financial system used to process ADE payments was inadequate and would not support any facet of the new data system. It was also discovered that ADE had not addressed the significant findings outlined by the Arizona Auditor General in 2005 with respect to managing and securing access to ADE educational data. ADE met those initial challenges and implemented successful initiatives, approved by the Data Governance Commission, to create a stable foundation for AELAS development and delivery. In the last two years, ADE has:

- Instituted improved industry-standard development processes and metrics;
- Increased system accessibility from about 50 percent to 99.7 percent and provided on-time fiscal year rollover for the first time in many years;
- Completed student counts, on time, for the first time in a decade;
- Improved school payment system, reducing payment processing from 40 days to 10 days; and
- Launched a phased deployment of a security system ensuring authorized data access.

Initial investment in AELAS has allowed ADE to:

- Collect and report student information on a fixed, point-in-time basis (***not real time***);
- Meet most federal state reporting deadlines using manual processes (***not web-based***); and
- Deliver SLDS dashboards to teachers in 10 pilot districts that depicts limited, lagging indicators like AIMS scores, attendance and enrollment history (***not actionable data***).

Further investment is needed for ADE to deliver:

- Common Core (***Teaching and Learning tools***);
- Performance indicators so teachers can provide immediate intervention (***data-driven decisions***);
- Accurate student payment system that eliminates costly errors (***high-quality data***);
- One single source of truth to serve existing and new data and information needs (***real time***); and
- Reduced manual reporting and burdensome data processing, estimated at more than one million statewide staff hours annually (***web-based system***).

AELAS is at a critical point. All Arizona students deserve an education system that will make them college and career ready. A commitment to full AELAS funding and implementation provides the timely and reliable data needed to truly transform Arizona's education system.

Getting to Real Time

AELAS is designed to follow the life cycle of a student from preschool to workforce, accumulating vital data so all education stakeholders are able to make informed decisions to prepare students for college and career readiness. ***Education Intelligence***, the end result of these efforts, is real-time analytics that facilitates an increase in student growth and teacher efficacy. The transmission of student performance data, however, lags far behind the shift in enrollment and valuable instructional time is lost as a result. The Data Quality Campaign (DQC) has identified *10 Essential Elements of Statewide Longitudinal Data Systems* to support effective data use as roadmaps for state policymakers. These elements promote the development of state longitudinal data systems that collect quality data and answer critical education questions to ensure policy discussions are informed by high-quality data.

ADE has modeled its AELAS plan to meet these objectives. At this time, Arizona has only achieved three elements in 2011 and four elements in 2012. Committed to make AELAS a best-in-class education data system, ADE consulted with the DQC's **Co-Founder and Former Deputy Director** to complete a thorough internal data quality audit and provide recommendations for a comprehensive data governance program. Implementing her recommendations will allow ADE to no longer barrage schools for data it already has, saving time, resources and frustration. When a student walks into the door, a school administrator will enter the information and demographics **one time**. ADE will publish a schedule of what data needs to be reported and when and why it will be collected. ADE staff can run reports and analyze data without contacting LEAs because the Department will already have what it needs in a safe, secure and accurate format.

ADE has also embarked on a two-year partnership with the Maricopa County Education Service Agency (MCESA) to pilot the following data systems: Evaluation; Assessments; Professional Development; Content Management; and Data Integration. These pilot systems serve as proofs of concept, allowing ADE to demonstrate ability to deliver systems as designed and as budgeted. This partnership is also focusing on creating a system architecture that meets the 10 DQC data elements and gathers requirements for the systems outlined in the AELAS Business Case (reviewed and commended by Gartner's Education division).

Arizona is ready. ADE has brought together stakeholders dedicated to educational excellence to build the system of infrastructure, human capital and ongoing commitment to make Arizona's children competitive in the national and international employment markets. ADE is ready to execute the changes necessary for statewide success and looks forward to producing significant, tangible and verifiable results and benefits.

PARCC Classroom Needs and Costs

PARCC's Technical Specifications Version 2, posted on December 21, 2012, provided additional clarity on computer systems by specifying a minimum level which would be valid for the first year of PARCC and a recommended level. Updated tools available in January include an updated Technology Readiness Tool (TRT) to support the new specifications in the Technical Specifications Version 2 and gap analysis reports. Currently Arizona LEAs have only completed 38 percent of their data submissions to the previous version of the TRT, not the representative sample of Arizona's diverse LEAs needed for accurate forecasting. It is important to immediately improve participation from LEAs so that the upcoming February 15 TRT data extract can provide the state with more information.

A School Readiness Calculator will also be available the second week of January that will give administrators the ability to model "what-if" testing scenarios.

PARCC has also started promoting their "rule of thumb" for student-to-device ratios, which is *one device for every two students in the largest tested grade*. As an example, if a middle-school with 1,150 students has 375 students in the sixth grade, 375 students in the seventh grade and 400 students in the eighth grade, the PARCC rule-of-thumb is that the school should have at least 200 computers that can be made available for testing. (This ratio is designed to give district and school administrators the capacity to deliver a district-wide assessment within a four-week test window.) A rough approximation of this rule of thumb is that 200 computers *available for assessment* are needed for 1,150 students, a ratio of about one to six in this example.

It is important to stress that these computers must be **available** for assessment. That same school of 1,150 students may have 40 classrooms each with three computers, two computer labs with 30 computers each and a mobile cart with 30 computers. Simply put, while the total count of devices exceeds the rule of thumb, the computers *in the classroom* might not be available for assessment unless they were all taken out of the classrooms and placed in the gymnasium for the duration of the testing window.

Unfortunately, these are crude cost estimates on devices. If all new devices need to be obtained, based on a six to one student to device ratio, the hardware costs alone could range from $40 million to $110 million. Thin-clients systems, which are inexpensive computers that are solely designed to use web-based applications (Google Chromebooks fall into this class), would be at the lower-end with modest office desktops and laptops at the higher end. ***This does not include any required infrastructure upgrades at LEAs (such as power and networking) nor does it include providing broadband to LEAs. This also does not include any ongoing support, maintenance, and technology refresh of devices.***

AELAS Components Definitions

Opt-In Systems	
Assessment Student Information Content Management Learning Management Educator Evaluation	A collection of e-Learning tools critical to the support of teaching and learning, curriculum development and delivery, and alignment of instruction to standards such as the AZ Common Core. This includes Learning Management, Content Management, Professional Development, and Observation/Evaluation systems.
Individual Educational Plan (IEP) Substitute Management	***IEP*** systems manage and allow the ability to transfer required forms and signatures as well as student accommodation plans, individual language learner plans, individual compensatory plans and Section 504 plans. ***Substitute Management System*** allows searches for available substitute teachers that match specified qualifications and allows substitute teachers to sign up for assignments that are posted in advance.
Nutritional Management Transportation Management	New ***Nutritional Management*** systems manage menus, inventory and costs that will integrate with Student Information System for student data and back office systems. The ***Transportation Management*** systems manage drivers, bus location and availability and bus maintenance schedules and records. The system manages transportation planning and bus routing, including extracurricular activities.
ADE Core Systems/Services	
SIS-Link (SAIS Replacement - Student)	New systems for managing a unique statewide student identifier and linking LEA Student Information Systems (SIS) to the state. Provides accurate student information required for SLDS reporting and allocation of state education aid.
School Finance System (SAIS Replacement - Payments)	The School Finance System integrates with ADE's Great Plains off-the shelf payment and accounting software to ensure proper and auditable state aid payments are made to LEAs.
K-12 Educator dashboards	Collection of interactive, browser-based educator dashboards with charts, reports and other visual indicators that give educators on-demand access to relevant and actionable information about student, class, grade and school performance.
Public SLDS View	Technology infrastructure that gives public educational stakeholders such as parents, businesses, researchers, and legislators easily accessed data in a manner that secures the privacy of information.
Data Integration Services	The only custom built system in AELAS, this system enables data integration of all of the other vendor provided systems as well as LEA systems.
ADE Systems Simplification and Streamlining	Simplification of ADE's 150+ applications can reduce or eliminate 500,000+ man-hours, significantly improving ADE's ability to service the LEAs at a lower cost, as well as reduce the reporting burden on LEAs.